

## CLAIMS

What is claimed is:

- 1    1.     A method for manufacturing an interconnected circuit board assembly, the  
2    method comprising:  
3         placing one or more spacers on one or more first bond pads of a first circuit  
4    board, wherein the one or more spacers are formed of a conductive material that  
5    remains in a solid form during attachment of the first circuit board to a second  
6    circuit board;  
7         aligning the first circuit board with the second circuit board so that one or  
8    more second bond pads of the second circuit board align with the one or more first  
9    bond pads, and the one or more second bond pads make electrical contact with the  
10   one or more spacers; and  
11         attaching the first circuit board to the second circuit board.
- 1    2.     The method as claimed in claim 1, wherein placing the one or more spacers  
2    comprises attaching the one or more spacers to the one or more first bond pads by  
3    forming the one or more spacers on the one or more first bond pads using a selective  
4    electroplating process.
- 1    3.     The method as claimed in claim 1, wherein placing the one or more spacers  
2    comprises attaching the one or more spacers to the one or more first bond pads by  
3    welding the one or more spacers to the one or more first bond pads.
- 1    4.     The method as claimed in claim 1, wherein placing the one or more spacers  
2    comprises attaching the one or more spacers to the one or more first bond pads by  
3    applying solder to the one or more first bond pads.

- 1 5. The method as claimed in claim 1, further comprising, prior to aligning,  
2 applying a conductive material in proximity to areas where each of the one or more  
3 spacers will contact complementary ones of the one or more second bond pads.
- 1 6. The method as claimed in claim 5, wherein applying the conductive material  
2 comprises applying a conductive material in contact with each of the one or more  
3 spacers.
- 1 7. The method as claimed in claim 5, wherein the conductive material is a  
2 conductive paste.
- 1 8. The method as claimed in claim 5, wherein the conductive material is solder.
- 1 9. The method as claimed in claim 5, wherein attaching the first circuit board to  
2 the second circuit board comprises heating the conductive material.
- 1 10. The method as claimed in claim 1, further comprising inserting an insulating  
2 material in an interface region between the first circuit board and the second circuit  
3 board.
- 1 11. The method as claimed in claim 10, wherein inserting the insulating material  
2 comprises injecting the insulating material into the interface region by a vacuum fill  
3 process after attaching the first circuit board to the second circuit board.
- 1 12. The method as claimed in claim 10, wherein inserting the insulating material  
2 comprises applying the insulating material to one of the first circuit board and the  
3 second circuit board, followed by partially curing the insulating material, prior to  
4 attaching the first circuit board to the second circuit board.

1 13. The method as claimed in claim 12, further comprising fully curing the  
2 insulating material after attaching the first circuit board to the second circuit board.

1 14. A method for manufacturing an interconnected circuit board assembly, the  
2 method comprising:

3 placing one or more spacers on one or more first bond pads of a first circuit  
4 board, wherein the first circuit board includes a glass substrate, multiple  
5 optoelectrical display elements located on the glass substrate, and the one or more  
6 first bond pads;

7 aligning the first circuit board with a second circuit board, so that one or  
8 more second bond pads of the second circuit board make electrical contact with the  
9 one or more spacers, and the one or more spacers are located in an interface region  
10 between the first circuit board and the second circuit board;

11 attaching the first circuit board to the second circuit board, wherein the one or  
12 more spacers are formed of a conductive material that remains in a solid form while  
13 attaching the first circuit board to the second circuit board; and

14 depositing an insulating material in the interface region, wherein the insulating  
15 material contacts both the first circuit board and the second circuit board.

1 15. The method as claimed in claim 14, wherein the insulating material is a  
2 polymeric material.

1 16. The method as claimed in claim 15, wherein the insulating material is injected  
2 into the interface region in an uncured form and cured in a subsequent heating process.

1 17. The method as claimed in claim 14, wherein the insulating material has a higher  
2 first thermal expansion coefficient than a second thermal expansion coefficient of the  
3 one or more spacers.

1 18. A method for manufacturing an electronic system with a processor, which  
2 functions as an image generator, the method comprising:  
3 manufacturing an interconnected circuit board assembly by  
4 placing one or more spacers on one or more first bond pads of a first  
5 circuit board, wherein the first circuit board includes a glass  
6 substrate, multiple optoelectrical display elements located on the  
7 glass substrate, and the one or more first bond pads,  
8 aligning the first circuit board with a second circuit board, so that one  
9 or more second bond pads of the second circuit board make  
10 electrical contact with the one or more spacers, and the one or  
11 more spacers are located in an interface region between the first  
12 circuit board and the second circuit board,  
13 attaching the first circuit board to the second circuit board, wherein the  
14 one or more spacers are formed of a conductive material that  
15 remains in a solid form while attaching the first circuit board to the  
16 second circuit board, and  
17 depositing an insulating material in the interface region, wherein the  
18 insulating material contacts both the first circuit board and the  
19 second circuit board; and  
20 coupling an interconnected circuit board assembly to the processor.

1 19. The method as claimed in claim 18, wherein the second circuit board  
2 comprises:  
3 a ceramic substrate;  
4 one or more layers of patterned conductive material located in and on the  
5 ceramic substrate; and  
6 the second bond pads electrically connected to the one or more layers of  
7 patterned conductive material.

1 20. The method as claimed in claim 18, wherein the insulating material is a  
2 polymeric material.

1 21. The method as claimed in claim 20, wherein the insulating material is injected  
2 into the interface region in an uncured form and cured in a subsequent heating process.

1 22. The method as claimed in claim 18, wherein the insulating material has a higher  
2 first thermal expansion coefficient than a second thermal expansion coefficient of the  
3 one or more spacers.